Source Water Assessment Program (SWAP) Report For Wheelwright Water District

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

? Inventory land uses within the recharge areas of all public water supply sources;

? Assess the susceptibility of drinking water sources to contamination from these land uses; and

? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program

Date Prepared:
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Table 1: Public Water System (PWS) Information

PWS NAME	Wheelwright Water District
PWS Address	Church Street
City/Town	Hardwick, Massachusetts
PWS ID Number	21240002
Local Contact	Thomas Collett
Phone Number	

Well Name	***Source ID#***	***Zone I (in feet)***	***ZoneII***	***Source Susceptibility***
Well #1	2124002-01G	397	# 500	High
Well #2	2124002-02G	288	# 500	High

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:
1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

Wheelwright Water District gets its water supply from two wells (Well #2 & #3) off Church Street in the Village of Wheelwright, located in the Town of Hardwick. The wells are located between Route 32 and the Ware River, east of Route 32 and approximately 500 feet south of Broadmeadow Brook. Well #3 is a replacement well for Well #1. Well #3 is a 12-inch diameter gravel packed well. Well #2 is a 12-inch diameter well which was installed in 1970 to a depth of 55 feet. Each well has a Zone I of 397 feet and a DEP approved Zone II. The geology at the site consists of fine to coarse-grained sand, gravel and cobbles with intermittent layers of sand and clay to a depth of approximately 70 feet below grade. A layer of fine to medium silty sand with trace gravel is found between 65 to 67 feet below grade. The well is located in an aquifer with a high vulnerability to

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II or, in the absence of a Zone II, an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by **the** water supplier and limited to water supply activities.
- **The Zone II** is the larger area that contributes water to the well **as** defined by a hydrogeologic study.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Zone II.

contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and Zone II. The well serving the facility has no treatment at this time. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web via EPA's Envirofacts website at http://www.epa.gov/enviro/html/sdwis/sdwis_query.html.

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate Activities in Zone Is;**
2. **An Aboveground Storage Tank (AST) With Heating Oil;**
3. **Railroad Tack;**
4. **Sand and Gravel mining and washing; and**
5. **Transportation Corridor.**

The overall ranking of susceptibility to contamination for the wells is High, based on the presence of at least one high threat land use or activity in the Zone II, as seen in Table 2.

1. **Zone Is –** Currently, the wells do not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The Wheelright Water Distrct's Zone Is contain buildings (elderly housing). The public water supplier does not own and/or control all land encompassed by the Zone I. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.

✓ Do not use pesticides, fertilizers or road salt within the Zone Is.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	Zone II	Threat	Comments
Fuel Storage Above Ground	Both wells	Both Wells	Moderate	Tank is on cemented surface in the basement.
Railroad track	Both wells	Both wells	High	Spills of hazardous chemicals; pesticide use for vegetation control.
Sand & Gravel mining & washing	Both wells	Both wells	Moderate	
Transportation Corridor	Both wells	Both wells	Moderate	Route 32
Structures	Both Wells	Both Wells	-	Non-water supply structures in Zone I

*** -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.**

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

2. **Aboveground Storage Tanks (AST) –** There are ASTs without secondary containment located on cemented floors in the building. If managed improperly, Aboveground Storage Tanks can be a potential source of contamination due to leaks or spills of the chemicals they store.

Recommendation:

✓ The Department recommends that 110% secondary containment for the AST in the buildings be provided. Aboveground storage tanks in your Zone II should be located on an impermeable surface. Comply with all provisions of the regulations regarding AST.

✓ Any modifications to the AST must be accomplished in a manner consistent with Massachusetts's plumbing, building, and fire code requirements. The Department recommends that you consult with the local fire department for any additional local code requirements regarding AST.

2. **Railroad Track –** A railroad corridor runs through the Zone Is and Zone II. Railroad corridors serving passenger and/or freight trains are potential contaminant sources due to chemicals released during normal use, track maintenance, and accidents. Normal maintenance of railroad rights of way can introduce contaminants to a water supply through herbicide application for vegetation control. Accidents can release spills or engine fluids and commercially transported chemical.

Recommendation:

✓ Contact your local Board of Health to ensure that the Zone II is included in right of way pesticide management planning.

✓ Contact local fire department to ensure that the Zone II is included in Emergency Response Planning

3. **Sand and gravel mining –** A sand and gravel mining operation is located within the Zone II. Sand and gravel mining is a potential source of contamination due to the possibility of spills or leaks from heavy equipment, fuel storage, and clandestine dumping.

Recommendations:

✓ Use Best Management Practices for storage, use, and disposal of hazardous materials such as fuel.

✓ Inspect the Zone II for signs of clandestine dumping on a regular basis.

4. **Transportation Co**

leaks or spills of fuels and other hazardous materials during accidents.

Recommendation:

✓ Contact local fire department to ensure that the Zone II is included in Emergency Response Planning

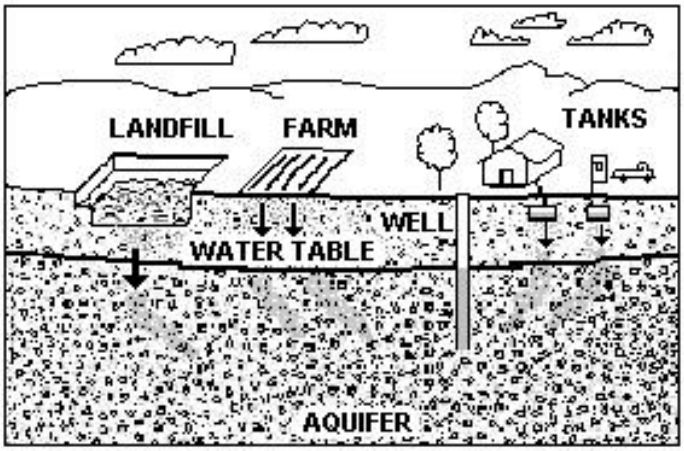

Figure 1: Example of how a well could become contaminated by different land uses and activities.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the wells' susceptibility to contamination. Wheelright Water District should review and adopt the key recommendations above and the following:

For More Information:

Contact Josephine Yemoh-Ndi in DEP's Worcester Office at (508) 792-7650 x 5030 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at: www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been provided to the public water supplier and town boards.

Zone I:

- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ Check any above ground tanks for leaks, etc.
- ✓ Since the houses in the Zone I are currently in use and will continue to be in use, use BMPs and restrict activities that could pose a threat to the water supply.
- ✓ If it's not feasible to purchase privately owned land within the Zone I at this time, consider a conservation restriction that would prohibit potentially threatening activities or a right of first refusal to purchase the property.
- ✓ Do not use pesticides, fertilizers or road salt within the Zone I.

Training and Education:

- ✓ Train staff on emergency response and best management practices; include custodial staff, groundskeepers, and certified operator. Post labels as appropriate on raw materials and hazardous waste.

Facilities Management:

- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property.

Planning:

- ✓ Work with local officials in Hardwick to include the Wheelwright Water District Zone II in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Pesticide Use Factsheet
- Source Protection Sign Order Form

APPENDIX C – Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas

DEP's datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP's Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP's Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state's OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at http://www.state.ma.us/dep/bwsc. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at http://www.state.ma.us/dep/bwsc/sitelist.htm, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Contaminant Type
2-0011737	2011 BARRE RD.	HARDWICK	Oil

For more location information, please see the attached map. The map lists the release sites by RTN.